Incremental Magnetic Recorders/SHORT-FORM CATALOG

KENNEDY COMPANY

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INCREMENTAL DIGITAL MAGNETIC TAPE RECORDERS

MODEL DS370

DESCRIPTION

The DS370 and others in this series are incremental magnetic tape recorders that prepare standard computer tapes from input sources operating at random or non-standard rates, with uniform character density and all gaps and marks for full IBM compatibility. A constantly rotating capstan allows high speed gap insertion or continuous read or write if required. Step-at-a-time operation eliminates buffering. Step motor drive with magnetic detents produces accurate steps at high rates. Typical data input sources are typewriters, keyboards, teletype lines, digital voltmeters, counters or other sources.

BRIEF SPECIFICATIONS

Step rate: 0-400/sec.

Skip rate: 30"/sec.

Step increment: IBM 200BPI (556 BPI if required)

Record Mode: NRZI

Tracks: 7 on 1/2" tape

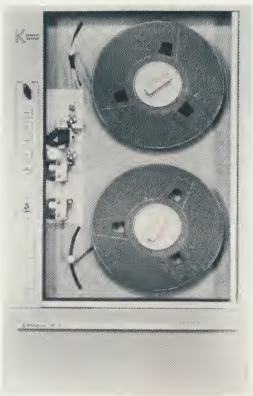
Reels: 10-1/2" IBM

Rec. Gap time: 50 msec.

File gap time: 175 msec.

DS370H High Speed version of DS370 above but rated at 0-500 steps/sec.

Step rate: 0-500/sec.



MODEL DS370 R

DESCRIPTION

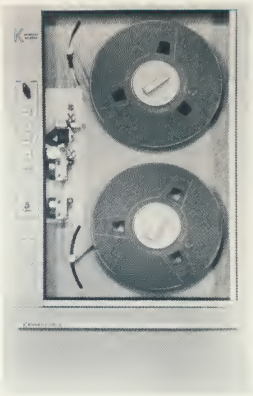
Continuous reading at 30 inches per second is the feature of the DS370R. Equipped with a read-write head; file protect and read electronics in a separate 7" card cage, the DS370R can also be furnished for any one of the following speeds: 10, 15, or 20 IPS. The DS370R will start and stop in a standard 3/4" gap.

BRIEF SPECIFICATIONS

Read Speed: 30 IPS

Optional Speeds: 10, 15, 20 IPS.

Record: same as DS370 or DS370H



MODEL DS370 IR

DESCRIPTION

The DS370IR (INCREMENTAL READ) adds the versatility of reliable incremental reading of magnetic tape at 150 characters per second to the usual incremental write capabilities of the DS370. 200 BPI computer tapes may be read one character at a time, eliminating buffers in such applications as printer operation, data communications and tape-to-tape converters.

Incremental read rate: 150 steps/sec.

Record: Same as DS370 except 300/sec maximum stepping rate.

FLUX-CHECK ™ a new development providing instant verification of data written on tape is applicable to any IBM compatible tape recorders described in this catalog.

In the Flux-Check ™ system, each character is read immediately after recording to verify that it appears on the tape in the intended form. Output of a bit-by-bit check signals any errors which might occur owing to bad tape, failure of the tape advance mechanism, or any other cause.

Flux-Check ™ overcomes the last remaining objection to the replacement of punched tape by magnetic tape—that of non-visible data. With Flux-Check ™ the many advantages of magnetic tape may be utilized without payment of this sometimes decisive penalty.

Flux-Check ™ is not a simple echo check which merely determines that the machine electronics are operating. Data on the tape is actually read in time to effect corrective action before the succeeding character.

Tapes produced on machines equipped with Flux-Check ™ are fully IBM compatible and may be read on any IBM 729 series transport.

CARTRIDGE LOADING DIGITAL MAGNETIC TAPE RECORDERS

MODEL 1400

DESCRIPTION

Model 1400 is a compact, inexpensive incremental magnetic recorder for IBM compatible recordings in low-cost systems. Expensive buffering not required because of rapid asynchronous operation. Parity, beginning of tape, record and file gaps all internally generated. 8-1/2" IBM reels permit small size, yet hold more than 2-1/2 million characters. Model 1400 is also available in incremental and continuous read/write versions.

Step rate: 0-200/sec.

Size: 19" x 12-1/4" x 12" deep.

Character Density: 200/inch std.
556 available

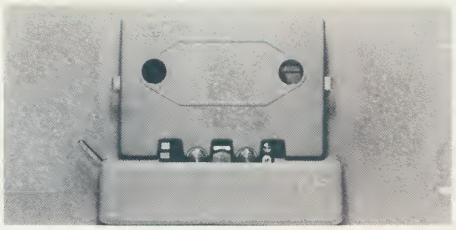
Record Gap: .75"

File Gap: 3.5"

Beginning of tape: 3.5"

Rewind time: less than 3 min.

Weight: 50 lbs.



MODEL DS300

DESCRIPTION

A compact, ruggedly designed incremental magnetic tape recorder with convenient, fast loading cartridges that will record IBM compatible tape asynchronously up to 500 characters per second. Kennedy C-11 cartridges, used in 300 series machines, hold 300' standard computer tape with capacity of 720,000 characters @ 200/BPI. Tapes may be re-wound on IBM reels, or read with Kennedy cartridge readers.
DS300 conforms to MIL-E-16400.

BRIEF SPECIFICATIONS

Record Mode: NRZI

No. Tracks: 7 IBM Compatible

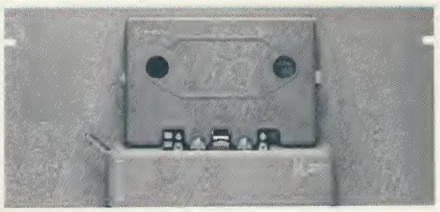
Density: 200/in.

Cart. Cap: 300' 1/2" 1.5 mil.

Step rate: 0-500/sec.

Size: 19" x 8-3/4" x 8" deep

Weight 25 lbs.



MODEL MR303

DESCRIPTION

For applications requiring a low speed, bi-directional magnetic tape transport of rugged design. Operating at an easy 6 IPS, the MR303 transfers data at 1200 characters/sec. Useful for ground support applications and input-output to small computers. Normally supplied deck only, full range of read-write electronics available. Construction conforms with MIL-E-16400.

Specifications same as DS300—except continuous motion.

Start-stop time: 6 msec.
Forward: 6 msec.
Reverse: 14 msec.

Rewind: 30 sec.

OPTIONAL ELECTRONICS

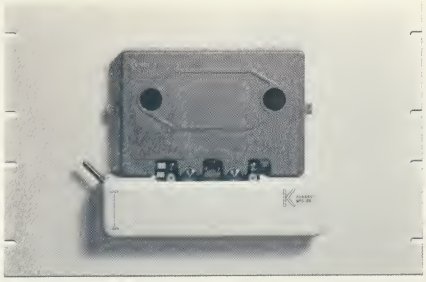
C-11 Cartridge type recorders, with the exception of the DSP340 are offered as decks without electronics because of the variations which may occur in individual applications. A full range of appropriate electronics can be assembled from standard cards.

Electronics can be supplied to either commercial or military standards, with positive or negative logic levels.

Card mounting can be in standard Kennedy Card racks (See DS370IR photo) or in sizes to fit customers' card cages.

Let us quote on your exact electronics requirements.

CARTRIDGE LOADING DIGITAL MAGNETIC TAPE RECORDERS

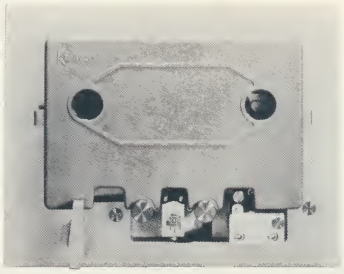


MODEL MR303 B

DESCRIPTION

Similar to the MR303, the MR303B is a unidirectional cartridge loading, continuous motion transport. Standard tape speed is 6 IPS with start/stop time of 5 msec. Typical applications include programming, machine tool control, etc. The MR303B can be supplied with read, write or read/write electronics. Construction is not Mil Spec but to highest commercial standards.

Specifications same as MR303—except high quality commercial construction instead of Mil Specs.



MODEL DSP340

DESCRIPTION

Small size and economical of current, the DSP340 records IBM compatible data under conditions where supply current and/or space is limited. Because heavy current is drawn only when actually stepping, long operating periods with minimum battery drain are possible. Typical applications are oceanographic, meteorological and nuclear monitoring and instrumentation. The DSP340 is recommended for any portable application requiring IBM compatible tape. Included is a seven channel low drain write amplifier (unmounted).

BRIEF SPECIFICATIONS

Step rate: 0-50/sec.

Standby current: 300 uamp (approx)

Peak current: .5 amp @ 12 msec/step

Battery voltage: 12 or 24 V (specify)

Size: 8-1/2" x 11" x 4" deep.

Weight: 9 lbs.

MODEL M201

DESCRIPTION

Costing no more than most punched paper tape equipment, the M201 offers the speed, convenience and simplicity of magnetic tape recording. One machine both reads and writes at speeds beyond the reliable capabilities of most punched paper tape equipment. Tape cartridges used with the M201 are inexpensive, easily stored, asynchronous speeds up to 65 alphanumeric characters per second can be accommodated. Inputs and outputs are directly interchangeable with punched tape equipment. Each cartridge of 600' capacity holds an equivalent of 3500' of paper tape. All logic is self-contained, and since there are no cams, clutches, linkages or rapidly rotating shafts, wear and maintenance are reduced to a minimum.

Read-write rate: 65 characters/sec.

No. Channels: 8

Start-stop time: 3 msec (max)

Tape width: 1/4"

Rewind Time: 30 sec (approx)

Cartridge Capacity: 600'-350,000 char.

Input—logic levels

Output—relay contacts or logic levels

MODEL C-11 CARTRIDGE

DESCRIPTION

The Kennedy C-11 cartridge has a capacity of 300 feet of 1/2 inch 1.5 mil computer tape. Compact and rugged, it offers maximum protection for tape in applications where environmental conditions are difficult and where operator training is a problem. The following machines have been designed to utilize the C-11 and to take advantage of its many features: DS300, MR303, MR 303B, DSP340.

BRIEF SPECIFICATIONS

Tape Capacity: 300' 1.5 mil 1/2" computer tape.
400' 1 mil 1/2" computer tape.

Size: 8-1/4" x 5-1/2" x 1"

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KENNEDY COMPANY
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FLUX CHECK

The usually cited advantages of incremental recording of digital data on magnetic tape, such as greater density, lower cost, more reliability, quicker operation and the possibility of re-using tapes would lead the observer to wonder why older methods of data storage were not entirely replaced by the more recently developed incremental tape recorders.

The most frequently raised objection to incremental tape recording is that the data is invisible. No holes were there to verify that the system was functioning. It did not matter that holes punched in paper tapes or cards did not guarantee freedom from errors; so long as the holes were visible, the operator knew the system was working.

Much of the objection to non-visible data on tape was eliminated on continuous recordings by placing a read head "down stream" and verifying the data recorded a few moments after it was written.

This method was not useful for incremental recording because of the distinct possibility that data recorded at one point would not reach a down-stream read head until hours or even days later. Partial verification was obtained by the use of "Echo Check" which gave an indication for each transition of the write flip-flops. However there was no guarantee that the information indicated was appearing on the tape.

With certain forms of recording such as Return to Zero or Return to Bias, it is possible to switch the write head to a read mode and read the flux on the tape as the tape moves out of the gap. Normally this method is impossible with the IBM compatible NRZ1 recording, since flux changes only for ones, and no flux change is made for zero.

The exclusive Kennedy Flux Check method of verification has overcome this limitation by development of a special head, and a method which permits switching from a write function (made while the tape is stationary) to a read function reading the magnetic domain on the tape as it moves out of the head gap. This information is compared with the input and is verified. In cases where an incorrect bit has been written, tape flaws exist, or any other condition which prevents the input, and data read off the tape from coinciding, a no-go signal is given so that the operator may be aware of an error and take appropriate measures.

This instantaneous verification of the information on the tape removes the last remaining objection to magnetic tape - that of not being able to immediately verify the presence of accurate data on the tape.

With reasonable care in operation and good tape, all Kennedy Recorders will produce error-free tapes. Flux Check adds the crucial margin of safety for those applications in which the penalties of data loss can not be tolerated.

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